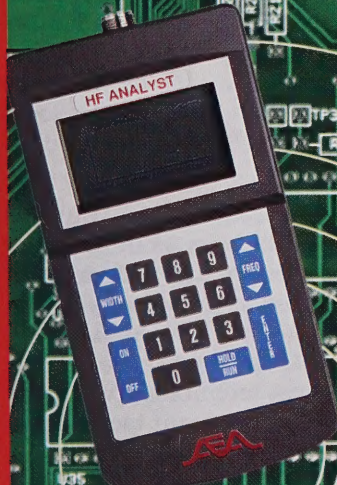
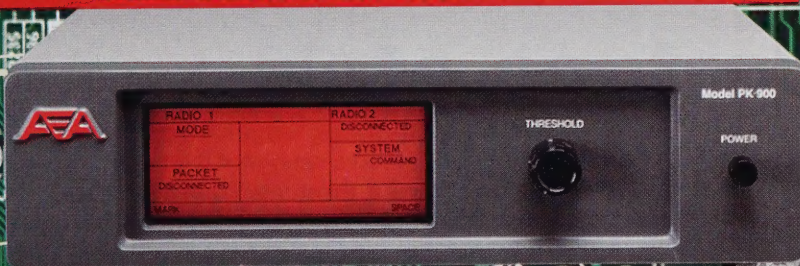


1995 AEA Catalog



Data Controllers

Software

Antennas

Antenna Analyzers

Remote Control

Keyers



an unfaltering dedication to all of amateur radio

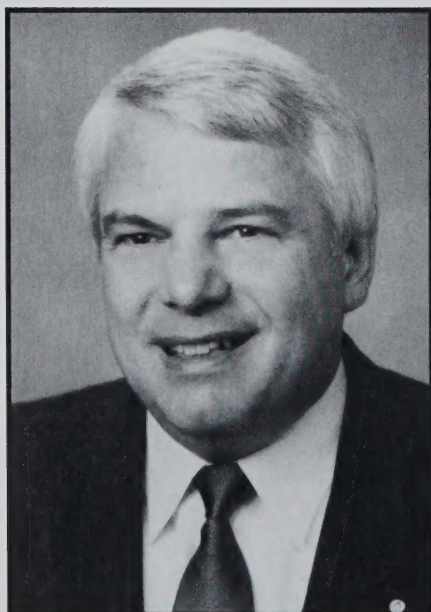
A Message From Our President, Rod Proctor

AEA has long been a leader in the application of new technology to amateur radio. One of our advertising slogans from the past is "AEA Brings You The Breakthroughs." I have been at AEA for a little over three years, and in that time the following products have been introduced: DSP-2232 and DSP-1232 Digital Signal Processor based multi-mode radio data controllers; IsoLoop 10-30 magnetic loop antenna; IT-1 automatic tuner for the IsoLoop; SWR-121 HF and SWR-121 V/U graphic antenna analyzers; PK-900 dual port data controller with hardware memory ARQ; PK-96 9600 and 1200 baud VHF/UHF Packet data controller; PK-12 1200 baud VHF/UHF data controller; ST-1 satellite tracker; HamLink and RadioLink remote base station control systems; and the KK-1 keyboard keyer. We have introduced PC-PakRatt for Windows versions 1.0 and 2.0; LogWindows versions 1.0 and 2.0; AEA-FAX II and III; and WeFax 256 for the DSP data controllers.

As you can see we have been very busy in the new product area. But, we haven't forgotten those who have purchased products from us in the past. The PK-232 MBX upgrades have kept on coming even though this product is approaching its tenth birthday. We are dedicated to bringing you the best in technology at affordable prices. Sometimes we have to wait for technology to catch up to our ideas. High speed HF data controllers are a good example of a product area that new lower cost technology will play an important role. If we stay within the bounds of our present technology we will not achieve the performance and ease of use that our customers need. We must not become a company that just offers "new" marketing digital modes. We know what it takes to give you the products that will out perform anything else in the market. AEA wants to give its customers the edge, not just a me-too product.

That brings me to the question most often asked, "How about a new digital mode?" It is time for some new digital modes. The technology to do it is affordable and the pioneering is underway. What the world needs is the implementation of new modems and the application of new error correction techniques to radio data transmission. New modems allow narrow bandwidth, 500 Hz or less to pass higher data rates than now possible. Better error correction will make the number of retries lower and data compression will further increase performance. The net result is better overall throughput and the possibility of linking under conditions that are too bad for other modes. These modes should be backward compatible with existing modes. This is the direction for AEA and where a great deal of our engineering resources, that have brought you the breakthroughs of the past, will be going in the future.

AEA is the company to watch for exciting new products. Here's hoping you enjoy using AEA products as much as we do bringing them to you.



73,

A handwritten signature in dark ink, which appears to read "Rod L. Proctor". The signature is fluid and cursive, with a large loop at the end.

Rod L. Proctor, KI7ZI

President

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data controllers

Data Controllers From AEA ... Anything Else is Old News

Today's amateur radio operators communicate in many different ways. One of the more popular methods is digital communications. The first signals sent in amateur radio were in Morse code, a form of digital communications. Another early method of communication was RTTY. RTTY is still popular, though the computer has replaced the teletype terminal, with all of its mechanical wonders. Since computers play an important role in our everyday lives, it is hardly surprising that people with computers might want to talk to other people with computers.

In late 1970's, the amateur radio community modified the communication system used by ships to come up with AMTOR (AMateur Telegraph Over Radio), which allowed worldwide error-free communication. A similar thing happened when a group of Canadian amateurs modified a particular networking protocol and created the first packet radio protocol, starting a revolution in digital communications.

One of the most common modes is packet radio. Packet radio is a low-cost way to send and receive messages on a worldwide basis. You can communicate keyboard-to-keyboard, use a personal mailbox, access Internet, or send and receive DX spotting information on a DX cluster. Packet radio doesn't require a wealth of knowledge about computers or amateur radio and the cost of getting set up with a packet radio station is very reasonable. As a matter of fact, if you own a home computer and a VHF transceiver you have two of the three necessary ingredients to get started in packet radio. What's left? A data controller from AEA.

AEA has been the technology leader in data controllers from the very start. Currently, there are seven high-quality AEA data controllers to choose from.

A good place to get started is with one of our packet-only data controllers, the PK-88 and the new PK-96. The PK-88 is perfect for the budget-minded amateur just looking to get their feet wet. Our newest data controller, the PK-96, lets you communicate with the state-of-the-art 9600 baud stations coming on line.

If you're interested in working digital modes other than packet, our line of multi-mode controllers are your best bet. Our best selling multi-mode controller, the PK-232MBX, is the best way to get a low-cost, high performance data controller that can decipher what you can't hear.

The future is in DSP-based (Digital Signal Processing) data controllers. AEA has been designing and manufacturing the DSP-2232/1232 for three

years. It is the most sophisticated data controller available for amateur use today.

Every day AEA's engineers are designing new products and new features for existing products. Not only have we pioneered hardware, but we have also helped bring new protocols, like PACTOR, to amateur radio operators. We have also developed a complete line of software that makes communications easier and more fun.

Buying an AEA product is an investment in the future because we bring you the break throughs.

Multi-Mode Product Comparison Chart

	DSP-2232/1232	PK-900	PK-232
Dual port	●/○	●	○
Pactor/packet/AMTOR MailDrop	●	●	●
B&W fax	●	●	●
9600 bps	●	●	○
PSK satellite modems	●	○	○
State machine DCD	○	●	○
19,200 TBAUD	●	●	○
Memory ARQ	●	●	●
LCD readout	●	●	○
External reset button	●	●	○
Separate AFSK controls	●/○	●	○
Digital signal processing	●	○	○

● = Yes ○ = No ●/○ = Option

DSP-2232 & DSP-1232



**Exceptional Data
Controllers for
Amateurs Who
Demand The Best**

Take a fast trip to the future with these digital signal processing multi-mode data controllers! The DSP-1232 with two switchable ports, and the DSP-2232 with two simultaneous ports, provide a new level of performance and versatility in data controllers. The capabilities of both are endless.

Providing a new level of performance and versatility. An incoming analog signal is digitized by a 12-bit, high speed, analog-to-digital converter. The digitized data is then digitally filtered and analyzed by a Motorola 56001 computer running at 24 MHz. The processed demodulated signals are then passed to a second processor, the Hitachi 64180, for protocol conversion. One great advantage of the DSP is that new modems or modes only require new software; unlike an analog modem which usually requires that new hardware be installed.

The dual port capabilities of the DSP-2232 let you take full advantage of Gateway. Your DSP-2232 now has a capability never before offered in a multi-mode controller: the ability to create a "gateway" from packet-to-AMTOR, packet-to-PACTOR, and of course, packet-to-packet. Since you have dual simultaneous radio ports, the DSP-2232 allows cross-mode gateway operation. Under your command, you can allow packet users connecting to Port 2, the ability to monitor and link to other AMTOR, PACTOR, or even packet stations using your HF radio on Port 1.

The dual ports of the DSP-2232 also offer you simultaneous HF and VHF monitoring, or running two

Specifications for the DSP-2232 and the DSP-1232

Demodulator	Motorola 56001 Digital Signal Processor running at 24 MHz
Modulator	Phase continuous sinewave, AFSK generator
Modulator output level	5-100 mV RMS, adjustable with side-panel controls
Processor system	Hitachi 64180
RAM	64K Lithium battery-backed
ROM	Up to 384K (128K dedicated to DSP)
Hardware HDLC	Zilog 8530 SCC
Power requirements	+13 VDC (+12 to +16 VDC) @ 1.1A

Input/Output Connections

Radio interface	Two 5-pin DIN connectors. Simultaneous operation on the DSP-2232, software selectable on the DSP-1232
Direct FSK outputs	Normal/Reverse
CW keying output	+100 VDC @ 100 mA max or -30 VDC @ 20 mA max
Terminal interface	RS-232-C DB-9P connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps
Printer interface	IBM compatible 25-pin bi-directional parallel port (DB-25 connector)

Physical

Dimensions	12" (305mm)W x 9.8" (249mm)D x 2.9" (73.7mm)H
Weight	3 lbs, 12 oz (1.7 kg)

On the Leading Edge of the Amateur Radio Frontier

VHF packet radios at the same time. You can also listen to your local DX node while working AMTOR on an HF frequency.

Internal software provides all popular digital amateur data modes, including PACTOR. As new modes become available, all you need are replacement EPROMs. Satellite and all PK-232MBX modems are available, plus the K9NG and G3RUH compatible 9600 bps modems. Any desired FSK tone pair can be programmed for the DSP units, as well as QPSK or other specialized modems. The DSP multi-mode data controllers are the most versatile on the market.

Automatic Doppler correction. Up/down Doppler shift for PSK modems, outputs for up/down frequency stepping to control the radio's frequency.

The onboard 9600 baud modem gives you even more power. Having 9600 baud capability lets you bounce packets off satellites and communicate with terrestrial stations at a blazing rate of speed!

PACTOR opens up a universe of capabilities. The potential of this new mode is practically limitless! Specific benefits include automatic speed selection (100 or 200 bps), error-free data, transmission memory ARQ, personal MailDrop, and ASCII data compression.

Other important benefits:

- Unique LCD read-out on the DSP-2232 displays the mode and diagnostics for both channels, giving you more information than LEDs can.
- On packet, the LCD displays the call signs of stations heard. On RTTY, AMTOR, and PACTOR text received on the air is displayed.
- Upgradeable flexibility for the DSP-1232 allows you to upgrade to a full-featured DSP-2232 with the LCD display at any time.

Everything that makes the PK-232MBX such a success is included in both DSP units. You get the latest version of MailDrop with selective control of third-party traffic and bulletin board system (BBS) compatibility so

messages can be automatically forwarded. Also included is the host mode preferred by professional programmers for efficient control of TNCs. In packet, the DSP is compatible with the TCP/IP networking protocol. This requires the data controller to recognize special commands not found on all controllers, such as KISS, PERSISTENCE, and SLOTTIME.

For fax printing, most parallel printers can be connected to the DSP or your computer. With the right software, you can print HF monitored fax signals. The DSP supports most printing standards.

DSP controllers will decode Time Division Multiplex (TDM) signals. TDM is a mode resembling FEC AMTOR used in commercial applications. TDM uses one sub-carrier, but assigns separate data channels to different time slots.

Modes and Modems for the DSP-1232 and the DSP-2232

Modes

Send and receive	ASCII, AMTOR (ARQ & FEC), Baudot, Fax (2-color), Morse code, Packet (AX.25 and KISS), PACTOR
Receive only	Signal Identification, AMTOR ARQ Listen, Bit-inverted Baudot RTTY, NAVTEX, TDM, 250 gray shade fax, PACTOR Listen

Modems

Port 1	RTTY/TOR 170: 2125/2295, RTTY/TOR 170: 1445/1275, RTTY/TOR 425: 2125/2250, RTTY/TOR 850: 2125/2975, RTTY/TOR 200: PACTOR 2110/2310, RTTY/TOR 200: PACTOR 1460/1260, Packet 300 bps HF 2110/2310, Packet 300 bps HF 1460/1260, Packet 1200 bps VHF, Packet 1200 bps PACSAT, Packet 1200 bps PSK, Packet 2400 bps V.26B, Packet 4800 bps PACSAT, Packet 4800 bps PSK, Packet 9600 bps FSK K9NG/G3RUH, Packet 4800 bps PSK, Morse 750 Hz, Analog Fax HF, Analog Fax APT, Analog SSTV, DSP data 400 bps OSCAR-13, RTTY/TOR 1200 bps ASCII OSCAR-11, DSP data spectrum, Packet 1200 bps MSK, Packet 2400 bps MSK
Port 2	Packet 200 bps HF 2110/2310, Packet 1200 bps VHF, Packet 1200 bps PACSAT, Packet 2400 bps V.26B, Packet 9600 bps FSK K9NG/G3RUH, DSP data 400 bps OSCAR-13, Packet 1200 bps MSK, Packet 2400 bps MSK
Dual port	RTTY/TOR 170: 2125/2295; Packet 300 bps HF 2110/2310 RTTY/TOR 170: 2125/2295; Packet 1200 bps VHF RTTY/TOR 200: PACTOR 2110/2310; Packet 300 bps HF 2110/2310 Packet 300 bps HF 2110/2310; Packet 1200 bps VHF RTTY/TOR 200: PACTOR 2110/2310; Packet 1200 bps VHF Packet 1200 bps VHF; Packet 1200 bps VHF

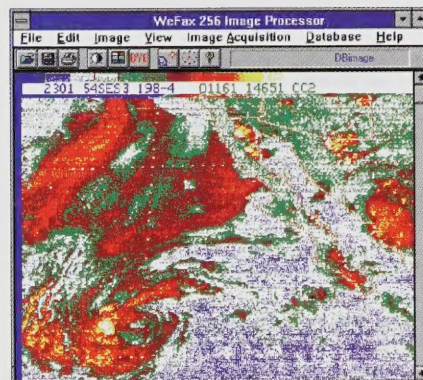
accessories for the DSP-2232/1232

AEA WeFax 256

This new Windows Program for WEFAX display features:

- Displays, in real time, true grayscale images from either the NOAA HF WeFax Service or the NOAA APT Satellite Service.
- Provides two modes of resolution—500 or 250 pixels per line—which insure that the AEA WeFax 256 Imaging System will work on your system. In addition to the real-time display mode, all incoming data is stored in a buffer, giving you the ability to obtain a higher resolution.
- Incorporates a scrollable receive buffer capable of operating in either stop or loop modes.
- Includes a complete Image Processor, giving the user the ability to enhance received images to bring out areas of interest. Enhancements include brightness, contrast, gamma, sharpness, negative, blur, false color, and many more.
- Supports BMP, GIF, PCX, TIF, and JPG image formats.
- Integrates an Auto Clock function to “wake up” your system; captures unattended transmissions.

Requirements: An AEA DSP-1232 or DSP-2232 Multi-mode Data Controller with a receiver and antenna system for either HF, APT VHF or microwave operation. A 386 PC-compatible computer or better, 2 MB of RAM (4 MB highly recommended), 5 MB of free hard disk space (more required if you wish to save images). VGA 256-color monitor and video card or better. Windows 3.1.



A sample screen from AEA WeFax 256 demonstrating some of the available enhancements.

ST-1 Satellite Tracker

New for the satellite operator! Hardware and software for automatic tracking of satellites. Hands-off control of antennas and transceiver tuning make satellite operation easy. As the satellite nears the horizon, the antennas are pointed in the proper direction and the rig is tuned to the right up-link and down-link frequencies. As the satellite moves into the field of view, the antennas track and the transceiver tuning is corrected for the Doppler shift throughout the pass.

Features:

- Automatically controls Yaesu 5400/5600 Azimuth-Elevation rotors. The ST-1 can be used with two independent rotors as well. Has A/D converters, precision power supply, and relays to control two independent rotors.
- Works with InstantTrack, QuickTrack and RealTrack software.
- Tunes FT-736, TS-790, IC-970 and the IC-475/275 combination transceivers. Does not require external RS-232 adapters.
- Provides initial tuning and Doppler correction during satellite pass.
- Hardware uses one serial port and parallel port from the host computer. Automatic switching provides easy access to serial and parallel port when ST-1 isn't in use.
- Requires an IBM PC-compatible computer capable of running InstantTrack, QuickTrack or RealTrack and 13.6 VDC @ 1A.



PK-900 Multi-Mode Controller

A Data Controller for Amateurs Serious About Exploring the Digital Frontier



The next generation of our American-made multi-mode data controllers is here. When you're ready to step up beyond our popular PK-232MBX multi-mode controller, the PK-900 is it. Its performance is comparable to units costing hundreds...even thousands of dollars more. From a capability standpoint, the PK-900 is positioned between the PK-232MBX and the DSP-2232, exhibiting features found on both. With the PK-900, there are no compromises: It has established a new benchmark in performance, with all the modes and features of the PK-232MBX and a good deal more.

Dual simultaneous ports. Switch between radio ports with a keystroke and still receive simultaneous signals from both ports. The days of hitting Radio 1/Radio 2 to switch back and forth—limiting you to one conversation at a time—are over.

Internal firmware includes SIAM™ — Signal Identification & Acquisition Mode. SIAM automatically identifies incoming Baudot, ASCII, AMTOR/SITOR, PACTOR, and TDM signals, and with a few keystrokes switches to the recognized mode and starts the data display.

Specifications for the PK-900

Demodulator	Port 1: 8-pole Chebyshev bandpass filter, 4-pole discriminator, 5-pole post-detection low pass filter. Port 2: AMD 7910 Modem
Modulator	Programmable phase continuous sinewave, FSK generator
Modulator output level	5-100 mV RMS
Processor system	Hitachi 64180, Motorola 68HC05B4, Motorola 68HC05C4
RAM	64K Lithium battery-backed
ROM	Up to 256K
Hardware HDLC	Zilog 8530 SCC
Power requirements	+12 to +16 VDC @ 1.1A

Input/Output Connections

Radio interface	Two 5-pin DIN connectors
Direct FSK outputs	Normal/Reverse
CW keying output	+100 VDC @ 100 mA max or -30 VDC @ 20 mA
Terminal interface	RS-232-C 25-pin DB-25 connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps
Printer interface	IBM compatible 25-pin bi-directional parallel port (DB-25 connector)

Physical

Dimensions	11.8" (300mm)W x 12" (305mm)D x 3.5" (89mm)H
Weight	6 lbs, 4 oz (2.84 kg)

Optional 9600 baud modem board gives you more power. This easy-to-install board makes "getting up to speed" easy. Bounce packets off satellites or communicate with terrestrial stations at a blazing 9600 baud. The PK-900 uses three dedicated processors and an innovative circuit design to give it the power and flexibility you want from a multi-mode controller that will serve you into the future.

High-performance bandpass filter limiter discriminator gives you excellent filtering on channel 1. The 8-pole Chebyshev bandpass filter offers six software selectable tone shifts—170 to 1000 Hz. The 6-pole, post detection linear phase low pass filter is optimized for data rates from 45 to 2000 baud.

Unique LCD display tells you everything at a glance. The large,



Any Way You Look At It, The PK-900 is a Revolution in Data Controller Technology

easy-to-read backlit display provides all essential status and mode information for both ports. A 20-segment multi-mode bar graph makes HF tuning easy. This display even informs you of new mail!

All standard features needed for digital amateur radio operation are included: PACTOR, Packet, AMTOR, ASCII, Baudot, Morse, B&W Fax transmission and reception, as well as ARQ3, NAVTEX, TDM, 16-level gray scale fax (with optional software), and signal identification when you're scanning the bands. 17K dynamically allocated packet and AMTOR MailDrop, Packet Lite for enhanced HF operation, and host mode for superior software support. Interface connection for AFSK, direct FSK, direct CW keying, tuning scope, plus selectable State Machine PLL or in-band energy level DCD. Also features a test mode for easy troubleshooting. The new ARXTOR command allows for automatic detection of AMTOR or PACTOR signals, identifying which type of signal it is and switching your PK-900 to that mode.

Change the way you communicate with Gateway! Not only does the PK-900 feature all the fine capabilities detailed above—now you have a capability never before offered in a multi-mode controller: the ability to “gateway” from packet to AMTOR, packet to PACTOR, and of course, packet to packet. Under your command, you can allow packet users connecting to Port 2 the ability to monitor and link to other AMTOR, PACTOR, and even packet stations using your HF radio on Port 1.

Gateway as a Node. Your Gateway firmware will support local acknowledgment (*acks*) of packets like a full-service node does, so instead of users having to digipeat through your MYALIAS or MYCALL call sign to connect to a destination station, they can now simply connect to your MYGATE call sign. From there, they can issue a connect request to the station they want to reach and your station will be responsible for accepting and sending packet data and acks.

Twenty software selectable modems. There are optimized modems for AMTOR, PACTOR, 45 baud teletype, and packet. There is even a disconnect header, so you can plug in your own modem. Modem selection is as easy as typing a command for the one you want. For a full listing of available modems, see below.

Modems: *Port 1:* FSK 45 bps 170 Hz, FSK 100 bps 170 Hz, FSK 45 bps 200 Hz, FSK 100 bps 200 Hz, FSK 100 bps 425 Hz, FSK 100 bps 850 Hz, Analog, Fax, FSK 300 bps 200 Hz, FSK 1200 bps 1000 Hz, Morse. *Port 2:* HF Packet, VHF Packet, Internal option for 9600 baud, and Modem disconnect header.

Accessories for your PK-900:

For truly cutting-edge digital operation, consider these products:

IsoLoop 10-30HF Antenna Page 18

A small loop antenna with big antenna performance. Great for amateurs with limited space.

PC-PAKRATT for Windows Page 14

Windows software that makes it easier to use the full capabilities of your PK-900.

For the following options, call our upgrade hotline at (206) 774-1722:

AEA FAX II 900 Option

Receives and displays fax signals in 16 shades of gray.

9600 Baud Option

Work satellites or terrestrial stations at 9600 baud.

PK-232MBX Multi-Mode Controller

**The Largest
Selling Multi-Mode
Data Controller in
the World**



This data controller combines all of the popular amateur data communication modes into just one unit; with over 65,000 sold worldwide, operators know they have found a winner!

Modes include: Morse Code, Baudot, ASCII, AMTOR/SITOR 476 and 625, PACTOR, HF & VHF Packet, B&W FAX receive/transmit, NAVTEX/AMTEX/ARRL information services.

Gateway as a Node. Your Gateway firmware will support local acknowledgement (*acks*) of packets like a full-service node does, so instead of digipeating through your MYALIAS or MYCALL call sign to connect to a destination station, simply connect to the MYGATE call sign.

Designed specifically for multi-mode operation...it's not just a packet controller with extra firmware. Its internal modem can transceive packet at rates from 45 to 1200 baud (2400 bps optional), with the option of using an external modem for higher baud rates. Also features a no-nonsense VHF/HF/CW modem with an 8-pole Chebyshev bandpass filter, followed by a limiter-discriminator with automatic threshold correction. The modem can copy shifts from 85 to 1500 Hz in two ranges.

Internal software includes SIAM™ — Signal Identification & Acquisition Mode. SIAM automatically identifies incoming Baudot, ASCII, AMTOR/SITOR, PACTOR, and TDM signals, and with a few keystrokes switches to the recognized mode and starts the data display.

Specifications for the PK-232MBX

Demodulator	8-pole Chebyshev bandpass filter, limiter, 4-pole discriminator, 5-pole post-detection low-pass filter
Modulator	Phase continuous sinewave, AFSK generator
Modulator output level	5-200 mV RMS
Processor system	Zilog Z-80
RAM	32K Lithium battery-backed
ROM	128K
Hardware HDLC	Zilog 8530 SCC
Power requirements	+12 to +16 VDC @ 850 mA (1A recommended)

Input/Output Connections

Radio interface	Two 5-pin connectors, front panel selectable
Direct FSK outputs	Normal/Reverse
Scope outputs	Mark, space
CW keying outputs	+100 VDC @ 200 mA max and -25 VDC @ 30 mA max
Terminal interface	RS-232-C 25-pin DB-25 connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, and 9600 bps
Printer interface	Centronics parallel printer output with optional cable

Physical

Dimensions	11" (279mm)W x 8.25" (210mm)D x 2.5" (64mm)H
Weight	3 lbs (1.35 kg)

Standard 18K MailDrop with selective control of third party traffic. It uses a subset of popular WØRLI/WA7MBL commands, including List Mine, Kill Mine, Read Mine, Edit, Help, etc. Your local BBS can automatically forward and reverse-forward messages to and from your station. The PK-232MBX can be used as the data controller "front end" with most popular BBS programs.

Efficient control with host mode designed to allow easy programming of powerful programs. In packet, the PK-232MBX internal program is compatible with the popular TCP/IP networking protocol via KISS mode.

Included: RS-232 shielded cable, two radio cables, and all rear panel mating connectors. Optional AC-4 power supply and pre-made radio cables available.

PK-96 Packet Controller



TheNet
Now available
for the PK-96 at
1200 & 9600bps!

When what you need is speed, you need the PK-96. Our PK-96 1200/9600 bps packet controller comes standard with 1200 bps AFSK tone signaling, as well as 9600 bps K9NG and G3RUH compatible direct frequency modulation, making it a truly high-performance data controller! The PK-96 not only makes an excellent terrestrial or satellite data controller, it also can be used for high-speed data links between packet systems.

TheNet compatible. Now network builders can add a 9600 bps port to their TheNet network with no hassels. Call AEA direct to find out the details about the PK-96 TheNet software.

Gateway as a Node. The PK-96's Gateway firmware acts as a full service node. Up to three other users can digipeat or "node-hop" through your PK-96 while you communicate with another station. You can even restrict certain users from digipeating or "node-hopping" through your PK-96.

Full-featured mail facilities. In addition to the speed, the PK-96 comes standard with 32K RAM which offers 18K of battery-backed MailDrop memory and is easily expandable to 128K offering 100K of MailDrop. MailDrop allows you to automatically receive and reverse-forward messages and control third-party traffic.

Extra commands add extra value, extra control. In addition to our famous HOST mode, special commands not found in all data controllers are included in the PK-96.

Other features include:

- Hardware "true DCD" state machine for open squelch operation.
- Hardware HDLC ensures accurate protocol conversion at 9600 bps.
- Modem disconnect header for installing other modems.
- Separate 1200/9600 TX level controls on back panel.
- Identifies TCP/IP, NET/ROM, and TheNet stations.
- Special EXPERT disable option eases the learning process by limiting the command set.
- PC PakRatt for Windows 2.0 compatible.
- Comprehensive manual which illustrates radio connections.
- Includes open-ended radio cable, power cable and RX audio cable.

If you're serious about packet radio, the PK-96 is the obvious choice. The PK-96 allows you to communicate on existing 1200 bps packet systems as well as with the new 9600 bps systems coming on line.

**A High Speed
Packet Controller
With the Speed
You Need**

Specifications for the PK-96

Demodulator	Texas Instruments TCM-3105 1200/G3RUH and K9NG compatible 9600
Modulator	Phase continuous AFSK 1200/9600 bps direct FSK
Modulator output level	5 mV-1 V RMS rear panel adjustable
Processor system	Hitachi 64180
RAM	32K standard, expandable to 128K
ROM	64K maximum
Hardware HDLC	Zilog Z8530
Power requirements	+12 to +16 VDC @ 400 mA

Input/Output Connections

Radio interface	5-pin DIN connector
Terminal interface	RS-232C DB-25 connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps

Physical

Dimensions	6.13" (156mm)W x 7.4" (188mm)D x 1.35" (34mm)H
Weight	1.2 lbs (0.54 kg)

PK-12 Packet Controller



Don't let the small size or the low cost fool you, you'll get full-sized performance plus the AEA quality you expect from the new PK-12. The PK-12 is a 1200 bps VHF Packet controller with GPS compatibility and is small enough to go mobile with or fit in the last bit of space in your shack.

The PK-12 includes firmware which enables it to connect to GPS receivers with a NMEA-0183 interface. AEA's optional APRS Adapter Cable for the PK-12 was designed for Hardware Single Port Mode operation. The cable lets users running APRS devote only one COM port for the GPS receiver and the PK-12. This is a great feature since most computers only have two COM ports with one used by a mouse. Laptop users only have one COM port so AEA's APRS Adapter Cable is a must. When used without the APRS Adapter Cable, the new firmware lets the PK-12 be used as a Stand Alone Tracking device. This means a PK-12 can obtain position information from a GPS receiver and beacon it in Packet over the ham bands through a transceiver without using APRS software; no computer is needed. Vehicles equipped with the PK-12, a GPS receiver and a radio can beacon their location and can be seen on a computer map by APRS users. The PK-12 is GPS, Loran, ULTIMETER-II, and ARNAV compatible.

Other features of the PK-12:

- **Gateway as a Node.** With the PK-12 you can "node-hop" to reach distant stations which reduces retries and increases throughput. Other people can use your PK-12 as a node to exchange personal messages and transfer packets. You even have the ability to restrict certain people from hopping or digipeating through your PK-12.
- **Full-featured mail facilities.** The PK-12 has 15K (32K RAM) of battery-backed Mailbox memory, which can be easily expanded to 100K (128K RAM). MailDrop allows you to receive and reverse forward messages and control third party traffic.
- **Great command set.** The PK-12 has AEA's famous HOST mode which is standard in all AEA TNCs. If you already know HOST mode, using the PK-12 will be second nature. HOST mode is easy to learn and once you do, you will be able to operate any AEA TNC. There is also an EXPERT disable command which limits the command set and allows beginners to get on the air immediately.
- **Windows support programs.** The PK-12 can be controlled by the state-of-the-art Windows control program PC PakRatt for Windows. All options are just a mouse click away with PC PakRatt for Windows!
- **Made for mobile use.** The low power requirement, small size, and GPS compatibility make the PK-12 an excellent choice for mobile packeting.

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Specifications for the PK-12

Demodulator	Texas Instruments TCM-3105 1200
Modulator	Phase continuous AFSK
Modulator output level	5 mV-1 V RMS rear panel adjustable
Processor system	Motorola MC68HC11DOP
RAM	32K standard, expandable to 128K
ROM	64K maximum
Power requirements	+12 to +16 VDC @ less than 80 mA
Input/Output Connections	
Radio interface	5-pin DIN connector
Terminal interface	RS-232C DB-25 connector
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, and 9600 bps
Physical	
Dimensions	5.78" (147mm)W x 5.275" (134mm)D x 1.35" (34mm)H
Weight	11.9 oz. (0.34 kg)

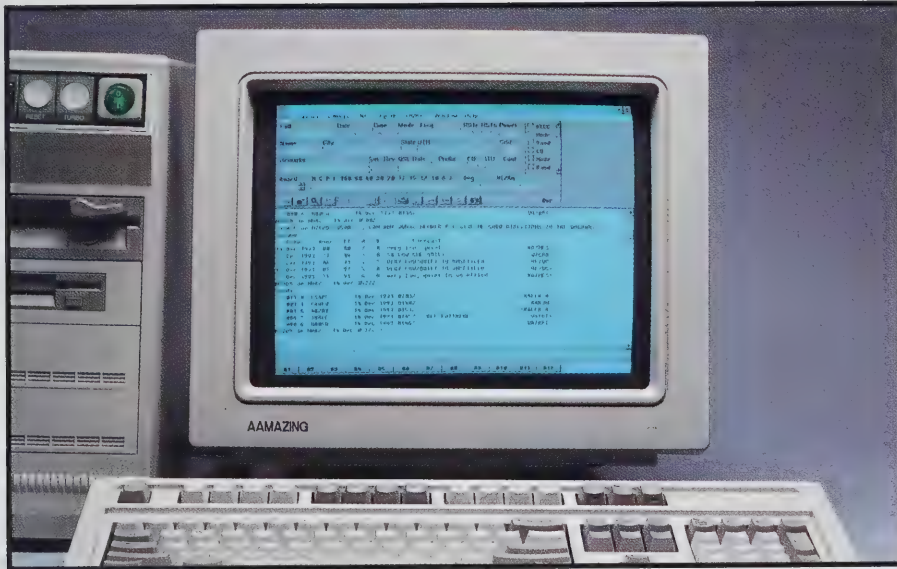
PCB-88

The PK-88 is a 1200 bps HF/VHF Packet data controller designed to plug into an 8- or 16-bit expansion slot on your PC-compatible computer. It has a true DCD circuit built in, along with a standard modem disconnect header. In addition the PCB-88 includes the PC-Pakratt 88 host mode program for easy control. Includes battery-backed Mailbox and full MailDrop features.

The included (US only) 12VDC adapter allows the MailDrop to receive messages, even when the computer is off. All necessary instructions and cables are included.

software

Log Windows™ version 2.0



**NEW
VERSION**

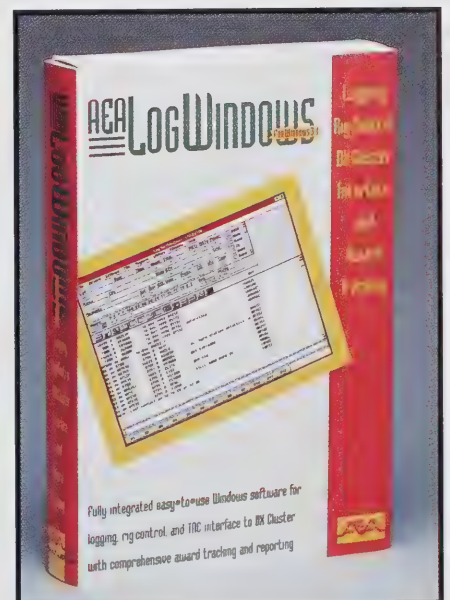
**Hate paperwork?
Love contesting?
AEA brings you
the solution.**

Log Windows 2.0 is a fully integrated, easy-to-use Windows program. It combines the functions of logging, rig control, and DX Cluster monitoring with award tracking and reporting. Log Windows 2.0 was created to automatically display DX spots and allow users to move to the designated frequency quickly, log the contact, then save the information in a log. The award tracking functions will keep you up-to-date on your progress toward various awards. Importing information from other logging programs is easy—move the data from your favorite contest program or previous logging program into the Log Windows 2.0 database without a hitch.

Features Include:

- Logging, rig control (ICOM, Kenwood, and newer Yaesu radios), antenna rotor control (Heath IntelliRotor, ProSearch, and Yaesu rotors), and data controller interface all in one integrated application.
- Compatibility with AEA's PC PakRatt for Windows 2.0. Now you can have the superior control of PC PakRatt for Windows coupled with the powerful logging and tracking of Log Windows.
- Ability to query on-line callbook databases such as SAM, QRZ, or HAMCall at any time.
- All these logs can be imported into Log Windows 2.0: CT, DXLog, Log Master, Easy DX, Hyperlog, DX Base, N6RJ 2nd Op, Log View, DX Desktop, PC PakRatt, and any ASCII log. Moving to Log Windows is easy!
- Award types supported: DXCC mixed, phone, CW, FSK, bands; CQ mixed, SSB, CW, FSK, bands; WAS mixed, SSB, CW, FSK, bands; VUCC, US-CA.
- Report types: Summary, Full report, Countries/states/zones worked, Countries/states/zones needed, QSLs sent, QSLs needed, Award tag types (not tagged/duplicates).
- Record searching modes: Call sign, prefix, QTH, state, grid, exact match, sequential, wildcard, and record number.
- DX filters allow only spots you need to sound an alarm.
- Packet Cluster interface supports any data controller in dumb terminal mode. Voice-synthesized DX announcement ability (DX in CW).
- Print logbook (chronological or sorted by prefix) or print QSO labels.

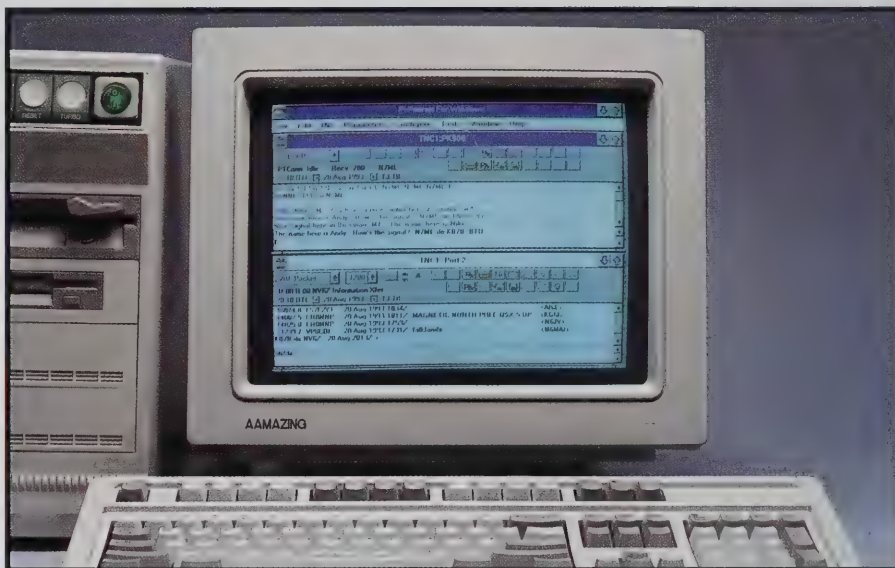
Requirements: Windows 3.1 or higher, 4 MB of RAM, VGA display. A mouse is recommended. Supports data controllers connected to COM1-COM4 (Optional) and/or Radio Serial Port connected to COM1-COM4 (Optional). Log Windows 2.0 does not require an AEA TNC.



PC PakRatt for Windows version 2.0



**Get your data
controller under
control!**



AEA knows that good software can make all the difference in whether you find your hobby a pleasure or a tedious chore. PC PakRatt for Windows 2.0 has been designed with this in mind.

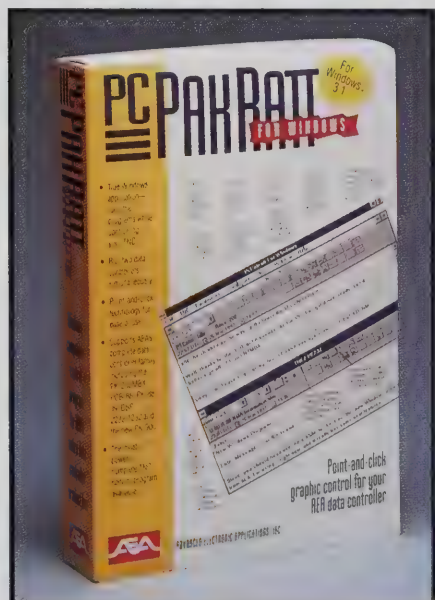
PC PakRatt for Windows 2.0 is a true Windows application, allowing you to run other programs while controlling your data controller. PC PakRatt for Windows is truly state-of-the-art! It operates on Windows 3.1, and Windows N/T. The graphical user interface makes program functions quick and easy to access.

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Log Windows Compatibility. That's right, PC PakRatt for Windows 2.0 is fully compatible with Log Windows 2.0. This means you can have the powerful TNC control of PPWin 2.0, coupled with the great database, logging, and tracking features of Log Windows 2.0.

Run two data controllers at once! Using Windows' multi-tasking abilities, you can have dual-, tri-, or even quad-port operation with two full-featured AEA data controllers. Imagine working an AMTOR DX station through your PK-232MBX, receiving information from a local packet net on your PK-900's port 2, and working PACTOR on port 1 of the PK-900, all at the same time! Or, use your PK-900 and DSP-2232 for four simultaneous ports!

ANSI Graphics. Sending and receiving ANSI graphics in PACTOR is now possible. You now have access to this exciting form of computer art with PC PakRatt for Windows 2.0.



Separate parameter files means setting up your TNC once and forgetting about it. Parameter changes are easy with the complete parameter windows, and each mode has a different parameter set, allowing each controller's setup to be easily optimized for each mode. There is even a parameter set for 9600 bps operation called High-Speed Packet.

More exciting features! Other features include separate windows for mailbox operation, QSO logging, file transfers, and much more. And, of course, PC PakRatt for Windows contains a comprehensive Help section to explain everything—from parameter definitions to how to run a dual-port controller.

Supports all AEA Data Controllers. PC PakRatt for Windows supports AEA's complete line of data controllers, including the PK-88, PCB-88, PK-12, PK-96, PK-232MBX, PK-900, DSP-1232, and DSP-2232.

AEA Quality. AEA stands behind all our products. We don't just make products, we provide cutting-edge technology, superior customer service, stringent quality control, and an 18 year tradition of excellence.

Requirements: Windows 3.1, 4 MB of free hard disk storage space, and 2 MB RAM (4 MB recommended).

PC-PAKRATT for DOS

Designed for PC-compatible computers and all AEA data controllers.

PC-PAKRATT II 5.5, is a split-screen terminal program for operation of Morse code, baudot, ASCII, AMTOR, PACTOR, NAVTEX, and packet.

Among its many features:

- Friendly on-screen one-touch Help menu to define commands and parameters for all modes.
- Full QSO logging feature.
- Nine hundred line scroll-back buffer stores incoming data.
- Five message/command buffers allow pre-programming of messages or commands for transmission with a single keystroke.
- Includes PK-FAX, a black & white fax display program.
- Complete macro key facility.
- PK-EDIT for editing message files.

Specifications: Requires minimum of 512K RAM and DOS 3.0. Supports COM 1-4. Provides mouse support.

MacRATT with Fax

Version 2.1 for Macintosh computers. Makes using AEA's Data Controllers as easy as clicking the mouse! Supports PK-232MBX and PK-88.

PC-PAKRATT 88

A lower-cost version of PC-PAKRATT II specifically for the PK-88. Most features of PC-PAKRATT II are included, but RTTY, FAX, AMTOR, etc., support have been removed since the PK-88 is a packet-only TNC.

COM-PAKRATT with Fax

For the Commodore 64 computer. Supports the PK-88 and the PK-232MBX. Supplied on two ROM plug-in cartridges and includes an RS-232 level converter.

**Data Controller
Software for your
Macintosh,[™]
Commodore,[™] or
DOS-based
Computer**

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Pakratt Software Selection Table

	PC-PAKRATT for Windows	PC-PAKRATT II	PC-PAKRATT 88	COM-PAKRATT	MacRATT
Which controllers*	All	PK/PCB-88, PK-232MBX	PK/PCB-88	PK-88, PK-232MBX	PK-88, PK-232MBX
Computer type	PC Compatible	PC Compatible	PC Compatible	Commodore C-64	Macintosh
PACTOR	●**	●**			
Fax	●***	●***		●	●
Binary file transfer	●	●	●		●
Disk & printer access	●	●	●	●	●
Help	●	●	●		

* "All" denotes PK-96, PK-88, PCB-88, PK-232, PK-900, DSP-1232, and DSP-2232.

** Requires AEA multi-mode controller with PACTOR.

*** Includes DOS-based PK-FAX, B&W fax receive & transmit program. Works with multi-mode controllers only.

● = Yes ○ = No

AEA FAX III

**NEW
VERSION**

Tired of Waiting for the Weather Reports on Television?



AEA FAX III is a multi-shade, gray scale fax receiving system with color enhancement for your PC-compatible computer. With a VGA monitor, up to 256 colors are possible, enabling you to receive highly detailed gray scale images and colorize them. Colorizing allows you to decipher more information from received images and makes them look more attractive. EGA, CGA, and Hercules monochrome adapters and monitors are supported as well, but with fewer gray shades and colors displayed.

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Another new feature enables a computer to drive computer controllable receivers, allowing frequency switching of the receiver for unattended capture of complex schedules. This feature coupled with the fax station database makes unattended captures a snap. Just choose stations from the database, put them in a schedule, and go do something else. When you come back, AEA FAX III will have captured the transmissions you need.

In addition to weather charts, WEFAX images, and wire photos, you'll be able to receive and decode Morse code and RTTY transmissions. AEA FAX III also has the capability to receive and display NAVTEX transmissions—the teletext-style maritime information service. The program is menu driven and works with or without a mouse.

On-screen tuning indicator makes tuning the signal a breeze! This tuning indicator remains active even while receiving, which helps you keep the signals coming in clearly.

Keep track of your favorite stations. AEA FAX III also includes a fax station database where you can keep a log of stations heard. Once a station is in the database, you can quickly and easily search the entire database by names, country, or time.

Share your images with friends! We've included a function that will export your received and colorized images to PCX or GIF files so you can use the images in other applications, share images with friends who don't have AEA FAX III, or edit the images in your favorite photo-editing program.

Simple plug-in demodulator included. The circuitry for demodulation is housed in the included demodulator (pictured with box at left). A shielded audio cable plugs into a COM port on your computer and into your HF receiver's external speaker output. The connector has a female DB-25 connector on one side, to interface with your computer's COM 1-4 port; on the other side is a male DB-25 connector so you can "daisy chain" and avoid tying up a COM port.

Other exciting features include automatic reception of images when you're away and support for most HP LaserJet- and Epson-compatible printers.

Requirements to run AEA FAX III. AEA FAX III requires a PC-compatible computer and a general coverage HF SSB receiver. VGA monitor required for optimum gray scale and colorized fax display. AEA FAX III also works with EGA and CGA monitors, but with reduced grays and colors displayed.



antennas

IsoPole™



The IsoPole™ is available in 144, 220, or 440 MHz versions, each yielding the maximum gain attainable for their respective lengths as well as zero-degree angle of radiation.

Superior decoupling results in simple tuning and a significant reduction in TVI potential. There is less feedline pick-up of any computer hash noise with the IsoPole than with any equivalent antenna.

Cones offer greater efficiency over obsolete radials which radiate in the horizontal plane. Additionally, the IsoPole offers broad frequency coverage. There is no loss of power output from one end of the band to the other. When used with SWR-protected solid-state transceivers, you experience a typical SWR of 1.4:1 or better across the entire band. VHF versions include a 50 ohm SO-239 connector recessed within the base sleeve for full weather protection.

An impedance matching network designed for maximum legal power. It compensates for the impedance introduced by the SO-239 connector used in the VHF models.

The IsoPole offers superb strength to withstand the harshest environments. The insulating material offers excellent strength and dielectric properties plus superb long-term ultraviolet resistance. The mounting hardware is stainless steel and the decoupling cone and radiating element are made of corrosion-resistant aluminum alloys. The aerodynamic cones are the only appreciable windload and attach directly to your TV mast.

Specifications for the IsoPole

Model*:	Iso-144	Iso-220	Iso-440
Frequency coverage	135-160 MHz	210-230 MHz	415-465 MHz
Impedance	50 ohms	50 ohms	50 ohms
Nominal power rating	1.0 KW	1.0 KW	1.0 KW
2.1 VSWR bandwidth	10 MHz @ 146 MHz	15 MHz @ 220 MHz	22 MHz @ 435 MHz
Length	125.5" (3.2m)	79.25" (2m)	46" (1.2m)
Min. mast length**	8' (2.4m)	5.25' (1.6m)	6" (50mm)
Coax connector	SO-239	SO-239	Type N
Gain (on horizon)	3 dBd	3 dBd	3 dBd

* Aircraft band and commercial versions also available

** Mast not included.

The Maximum Gain Antenna with Patented Cone Decoupling

17

Get extended range and maximum gain with these high-performance telescoping handheld half-wave antennas. HotRods achieve higher gain than any 5/8 wave, two-meter telescopic antenna for handhelds.

The HR-1 is 20% shorter and lighter than a 5/8 wave antenna, which places less stress on your handheld's connector and case. It can handle over 25 watts of power, making it an ideal portable base or mobile antenna. Collapsed, the HotRods perform electrically like helical quarter-wave flexible antennas.

Two versions available: the HR-1 half-wave 2M, and the HR-2 half-wave 220 MHz.

HotRods



IsoLoop 10-30 antenna

**The Biggest
Performance You
Can Find in a
Small Antenna!**



This high-Q, high-efficiency antenna is perfect for amateurs living in areas with antenna restrictions! This antenna exhibits a significant engineering breakthrough with its high-performance, low-profile design. It covers 10-30 MHz continuously at 150 watts and makes it possible for hams to enjoy their hobby in what may seem to be an impossible location.

Superb engineering makes this antenna unique. The antenna is omnidirectional and requires no rotor or antenna tuner. It can be mounted horizontally or vertically. Horizontal mounting is preferred for best DX performance due to the lower angle of radiation at low heights. It also allows for easy attic installation. Mounting it vertically provides a null in a specified direction. The flexible, iridited aluminum loop band has a very low radiation resistance—ranging from 0.2 to 0.4 ohms!

Compact design great for amateurs in restricted areas. Operate your favorite band from areas with restrictive zoning ordinances! And the IsoLoop 10-30 can be easily compressed to squeeze through attic openings and other tight spaces in apartments and condos.

The antenna is highly efficient due to precise, heavy-duty construction and design standards. Efficiency ranges from 96% on 10 meters to 72% on 20 meters. The custom designed, split-stator capacitor has no rotating

contacts and is rated at 10,000 volts. (A smaller capacitor would require a less efficient antenna design to prevent arcing.)

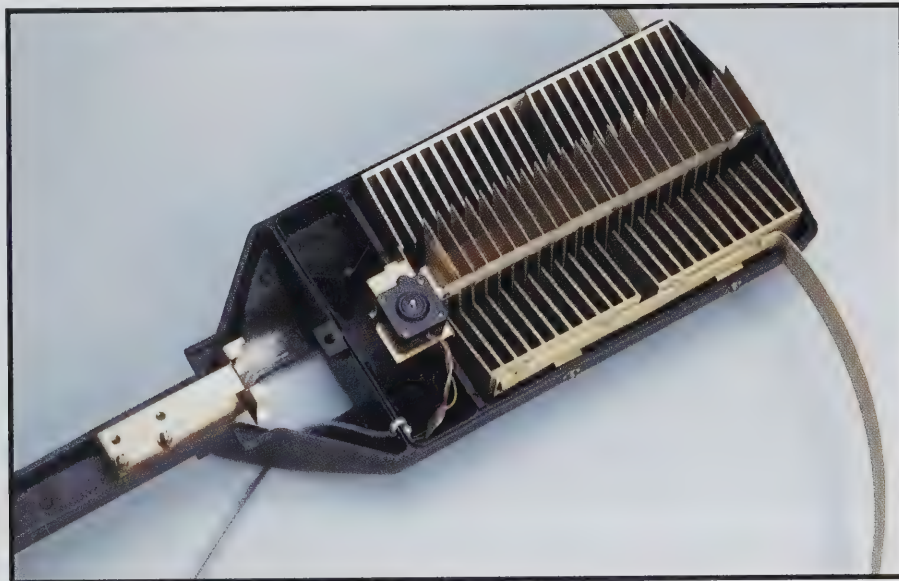
In addition, the high-Q design results in a narrow bandwidth which suppresses harmonics from your transmitter, reducing TVI problems. It also attenuates out-of-band signals, helping prevent receiver overload.

The capacitor is rotated by a low-noise precision stepper motor, so exact tuning is a breeze.

Specifications for the IsoLoop 10-30

Frequency coverage	10 to 30 MHz, continuous	
Nominal Impedance	50 ohms	
Power rating	150 watts	
VSWR	Less than 1.5:1 (no nearby obstructions)	
Temperature	Operating	0 to 150°F (-17 to 65°C)
	Storage	-50 to 200°F (-45 to 93°C)
Dimensions	35" (89cm) diameter circle	
Max. mast diameter	2" (51mm)	
Weight	Actual: 14 lbs (6.35 kg)	Shipping: 25 lbs (11.34 kg)
Coax connector	UHF (SO-239)	
Gain over dipole	Depends on elevation	

Optional LC-2 shielded control cable with connectors available in 50' (15.25 M) and 100' (30.5 M) lengths.



***From the Inside
Out, the IsoLoop
Proves That Size
Doesn't Matter!***

Getting on the air is a snap. The IsoLoop comes fully assembled, so getting on the air is just a matter of sliding the loop onto the mast,* tightening down the U-bolt, and attaching the coax.*

There are no complicated instructions or mechanical joints. All welded construction means no mechanical joints, so the possibility of corrosion is kept to a minimum. The IsoLoop 10-30 is isolated from the feedline, resulting in an undistorted radiation pattern and less stray RF in the ham shack.

The IsoLoop 10-30 is compact, round, measures a scant 35" in diameter and weighs only 14 pounds. Because it comes fully assembled and operates on 13.8 VDC, it is the ideal antenna for Field Day and DXpeditioning. Use it on a boat, a mobile home, take it wherever you wish! It comes with an AC-1 power supply (US only), LC-2 tuner with frequency indicator, and a 50-foot shielded control cable.

The IsoLoop 10-30 includes 50 feet (15.25 M) of shielded control cable. Extension cables are available.

*Mast and coax cable not included.

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IT-1 Automatic Tuner



With the IT-1 IsoTuner, tuning the IsoLoop 10-30 has just become easier! Tuning with the IT-1 typically takes just a few seconds.

Internal beeper confirms key pad operations and announces completion of tuning or error conditions

A thumbwheel knob provides manual control and fine tuning with the step rate determined by the speed of knob rotation. The IT-1 tunes for maximum receive noise or minimum SWR. Add to this eight programmable memories and a 10-segment multipurpose LED bar and the IT-1 becomes an indispensable part of your IsoLoop tuning system.

Memory back-up, built-in serial interface, and pop-up software included.

antenna analyzers

SWR-121 HF & SWR-121 V/U

**Get a Grip on
Your Antenna's
Performance With
the SWR-121 HF or
SWR-121 V/U**



Take the guesswork out of getting maximum antenna performance—use the SWR-121 VHF/UHF (120-175 MHz, 200-225 MHz, and 400-475 MHz) or the SWR-121 HF (1-32 MHz) Antenna Analyst. With a graphic display to show what's happening with your antenna's SWR vs. frequency, the SWR-121 Antenna Analysts help you maximize your investment in your amateur radio antennas.

The SWR-121 Antenna Analysts combine a microprocessor-controlled frequency synthesizer with an accurate low-power SWR bridge. A full-featured keypad allows you to select the center frequency, frequency range, and step size. The unique LCD readout displays the antenna's SWR curve over an entire range, not just at one frequency.

Use the analyzer anywhere—at a Field Day site, up the tower, or from your shack! Take this portable analyst with you next time you climb the tower. From there, plug your antenna directly into the SWR-121 and get a precise display of your antenna's SWR curve, independent of the feedline. Subsequently, make tuning adjustments and immediately see the results. There's even a handy carrying case available!

Specifications for the SWR-121 HF & SWR-121 V/U

	SWR-121 HF	SWR-121 V/U
Frequency ranges	1.0-31.999 MHz	120-175, 200-225, 400-475 MHz
Characteristic impedance	50/75 ohms, selectable	50 ohms
SWR measurement range	1:1 to 65.5:1	1:1 to 65.5:1
Return loss range	0.3 dB to 50 dB	0.3 dB to 50 dB
Frequency increments	1 kHz	10 kHz
Serial port	9600 baud, XON/XOFF handshake	9600 baud, XON/XOFF handshake
Accuracy	+/- 10% typical, below 10:1	+/- 10% typical, below 10:1
Display resolution	0 to 200 kHz per dot (1 kHz increments)	0 to 990 kHz per dot (10 kHz increments)
Harmonics & spurious	>30 dB below fundamental, typical	>30 dB below fundamental, typical
Display update time	Approximately 9 seconds/sweep	Approximately 2 seconds/sweep
Power requirements (identical for both units)	Internal Eight AA alkaline or high energy lithium batteries External 12-16 VDC	
Physical (identical for both units)		
Dimensions	4.3" (109mm)W x 8.5" (216mm)D x 2.25" (57mm)H	
Weight	1 lb, 10 oz (0.74kg)	

Testing coax has never been easier! Use your SWR-121 Antenna Analyst to measure the return/loss in dB in a length of coax. Now you will be certain it's time to replace that old feedline with fresh coax and new connectors.

Optional Software. With features like remote control of your SWR-121 and the ability to display plots on the computer, the optional AACOM software makes it easy for you to get the most from your hand-held Antenna Analyst. With AACOM you can:

- Save plots to disk and track antenna performance over time.
- Control an SWR-121 from a computer keyboard. (Interface cable included with AACOM.)

remote control

HamLink and RadioLink



**Now You Can
Operate Your Base
Station From Just
About Anywhere**

No longer are you tied to your shack when you want the power of a base station. Now you can control your Icom, Kenwood, or Yaesu radio using a telephone, handheld, or mobile radio. Using your radio's computer port you can operate SSB, FM, AM, and even CW from your car, your office, on vacation—anywhere you go.

You can change bands, frequency, and modes with HamLink or RadioLink. Just in case you lose track of your frequency or mode, we've included a voice synthesizer to remind you. Plug-in cables make set-up a snap. Both units have outputs for controlling other accessories.

HamLink. HamLink controls your ham station using a touch-tone telephone. Change bands and frequency, tune up or down, switch modes (AM/SSB/FM/CW), scan, run split VFO, or virtually any other radio feature from anywhere you can find a touch-tone phone.

HamLink hooks into your existing telephone line so there is no need for a second phone line. HamLink functions perfectly even if you have an answering machine connected to the same phone line.

RadioLink. Similar to HamLink, RadioLink lets you use the touch-tone keypad on your handheld or mobile radio to change bands, frequency, or mode. RadioLink can go between your HF/VHF/UHF transceiver and a repeater or a 220 MHz or UHF full duplex link.

RadioLink also interfaces with equipment that does not have a computer port for commercial use. In addition, RadioLink can be switched to a local mode so that the user does not have to plug and unplug a local mic, key, and speaker.

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OpLink

Used with HamLink, OpLink lets you plug in your favorite key or keyer and start transmitting high speed CW. Use a headset/boom mic combination or stereo headsets at the user end of the connection for great audio.

OpLink allows the use of the Icom HS-10 or Yaesu YH-2 headset boom microphone combination, allowing you to use a mic tailored for amateur use instead of the element in your telephone. OpLink also has a key jack so you can plug in your keyer, bug, or hand key to allow high speed CW.



keyers

KK-1 Keyboard Keyer

**Get All Keyed Up
with the New
Keyboard Keyer
from AEA**



Put the world at your fingertips! If you enjoy operating CW, the KK-1 Keyboard Keyer literally puts the world at your fingertips. The KK-1 turns any standard PC-compatible 101-key keyboard into an easy-to-use, feature-packed Morse machine. If you already have a keyboard connected to your PC, the KK-1 will share it with your computer (cable provided), saving valuable operating space. A simple key combination switches the keyboard between the keyer and your computer.

Well thought-out controls. The KK-1's extensive features take full advantage of your keyboard's layout. For example, the separate numeric and cursor-control keypads are used for accessing the majority of functions and for parameter selection. The twelve function keys select the message buffers with a single keystroke.

A host of useful features. Unique features, such as short-term memory, message repeat, and nestable message buffers make the KK-1 versatile and easy to use. You can hone your skills with an extensive code practice mode which allows you to choose between words commonly heard on the air (over 700!) and random groups of selectable length and difficulty. A built-in iambic keyer allows you to use paddles for a change of pace, and the paddles can be easily inverted for right- or left-handed operation.

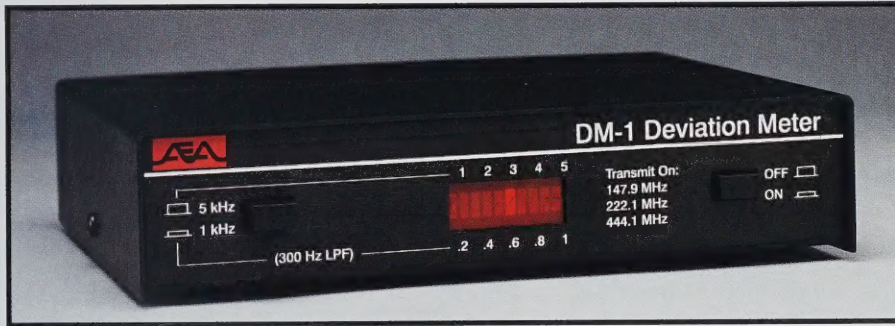
Specifications for the KK-1

Character formation speed range	5 to 90 WPM
Average sending speed range	5 WPM to formation speed
Memory	Up to 12 message memories, dynamically allocated, nestable
Keying output	Positive to ground and grid-block
Serial numbers	1 to 9999
Message auto-repeat delay	1 to 99 seconds
Dot-dash ratio	Normal, plus 9 light and 9 heavy settings
Type ahead buffer size	255 characters
Total message capacity	7913 characters
Sidetone range	200-2500 Hz, continuously variable
Power requirement	10-16 VDC, 350 mA
Physical	
Dimensions	6.8" (173mm)W x 4.5" (114mm)D x 2.5" (64 mm)H
Weight	2 lbs (0.91 kg)

All operations are monitored on a large, four-digit LED display with mode indicators. Speed can be selected from the keyboard or the front panel knob (also used to adjust sidetone pitch). Adjust character formation speed and average sending speed together or independently. Practice code without disturbing others using the headphone jack and volume control. With nineteen weight settings, you can easily compensate for transmitter keying characteristics or give yourself a distinctive "fist."

With more usable features for your money than any other Morse keyboard, the KK-1 continues AEA's tradition of top-notch keyers.

DM-1 Deviation Meter



An essential tool for operating at 9600 bps is a deviation meter. AEA's new DM-1 is a deviation meter designed for measuring the deviation of FM transmitters operating in the 144, 220, or 440 MHz amateur bands.

For maximum throughput, it's important that your transmitter's deviation be correctly set. If the deviation is set too low, other stations will not hear your signal; if set too high, your over-deviated signals will interfere with amateurs operating on nearby frequencies.

People can't rely on subjective deviation tests anymore, so we've designed the new DM-1 to provide users with a quick and simple way to make accurate measurements.

People using 9600 baud TNCs will benefit most from the DM-1 because correctly setting deviation for 9600 baud Packet operation is nearly impossible to do by ear. Packet users that are used to the 'braaap' sound of the 1200 bps packet burst will only hear 'white' noise when using 9600 bps. The DM-1 allows users to correctly set deviation — eliminating excessive retries, increasing data throughput, and increasing channel efficiency.

A unique feature of the DM-1 is that the tuning is crystal controlled, which provides stable measurement and eliminates the need for manual tuning. Two deviation ranges allow sufficient resolution for accurate measurement of voice, data, DTMF, and subaudible deviation. Handhelds, mobiles, and base stations can be checked for correct audio deviation.

The DM-1 comes with a ten segment LED bar display and includes an output for external digital or analog meters, which provide increased resolution. Also included is a low-level, de-emphasized audio output for monitoring audio quality through an external amplifier.

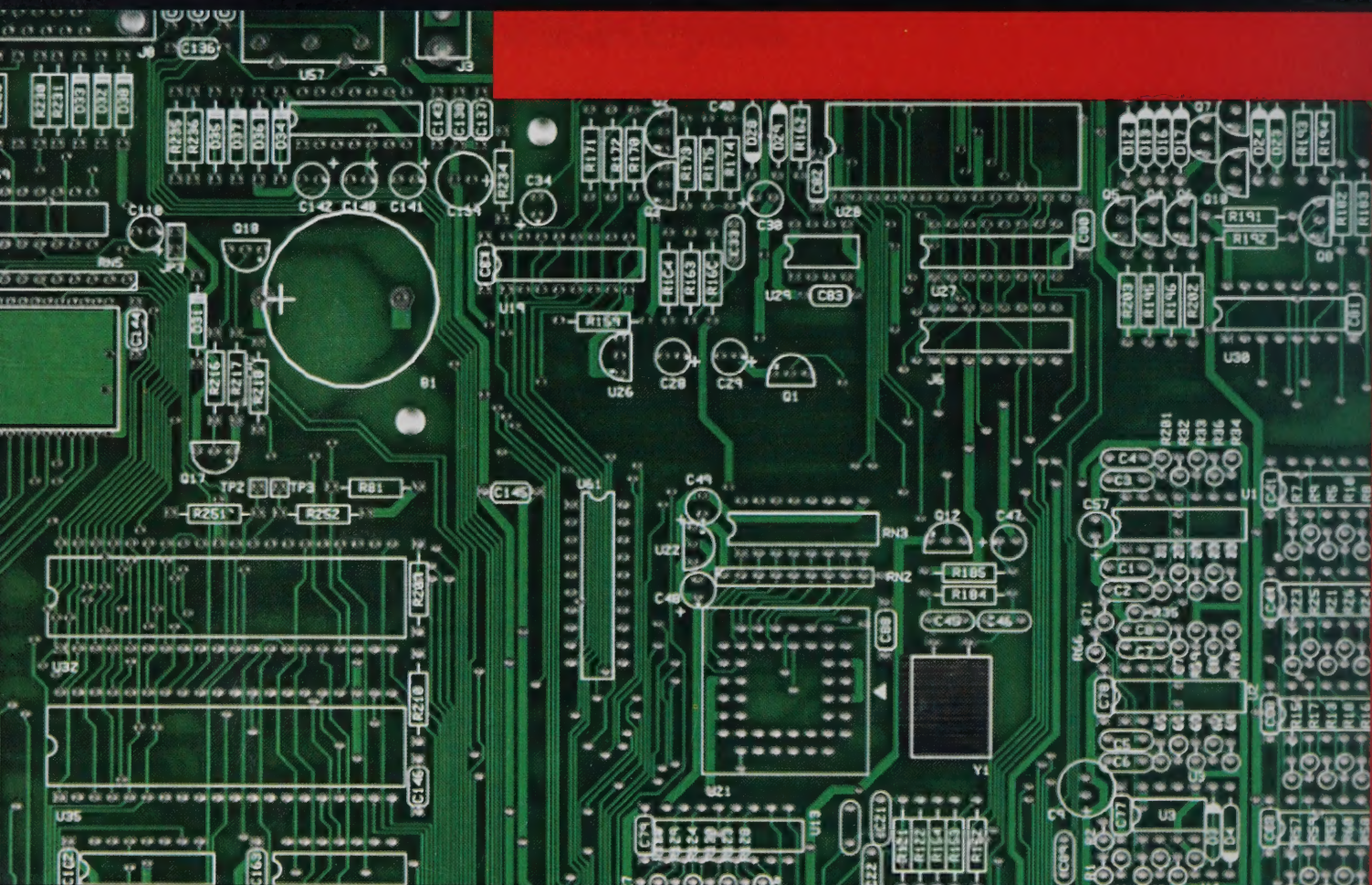
Power is supplied by one standard 9 volt alkaline battery. When battery voltage drops below 5.5 volts, the DM-1 is automatically disabled to prevent erroneous readings.

The DM-1 is small (6.125" W x 4.750" D x 1.377" H), and weighs less than a pound. It can be stored almost anywhere until you need it or it can be left in-line.

**A Deviation Meter
that is Accurate
and Easy to Use!**

Specifications for the DM-1

Frequencies:	147.9 MHz., 222.1 MHz., 444.1 MHz.
Deviation Ranges:	± 1 kHz., ± 5 kHz. full scale
Readout:	10 segment LED bar and provisions for external meter
Deviation resolution (LED):	50 Hz. on 1 kHz. range; 250 Hz. on 5 kHz. range (Greater with external meter)
Accuracy:	± 5% of full scale
Audio Freq. Response:	± 2 dB. from 10 Hz. to 300 Hz. (1 kHz. range) ± 3 dB. from 10 Hz. to 5000 Hz. (5 kHz. range)
Sensitivity (WHIP input):	< 100 mV.
Operating power (through):	1 Watt - 100 Watts
SWR:	<1.3 : 1
Audio de-emphasis:	750 us.
Battery:	Standard 9 Volt alkaline
Battery current:	60 mA. typical
Battery life:	6-8 hours typical
Size:	6.125" W x 4.750" D x 1.377" H
Weight:	1 lb.



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Customer Service	(206) 775-7373
Upgrade Hotline	(206) 774-1722
Literature Request Line	(800) 432-8873
Fax	(206) 775-2340
Compuserve	76702,1013

To order, contact your favorite amateur radio equipment dealer.

All specifications subject to change without notice.

